

**R.M. Operating Inc. (387991)** 

**Holcomb A (23361)** 

# Salt Water & Hydrocarbon Contamination Remediation Proposal

## Written & Submitted By: Stan Mickle Hulett Evans

Any trade secret, technical information, design, process, system, procedure, formula, specification, sketch, plan (engineering, architectural or otherwise), apparatus, know-how, bid or pricing information, financial data, or any other compilation of such information whatsoever contained herein regarding SOS Environmental, Inc. ("S O S") may be referred to herein as "Proprietary and Confidential Information". All Proprietary and Confidential Information acquired hereunder shall be held in strict confidence. Proprietary and Confidential Information shall be used, disclosed, copied or duplicated solely in connection with its evaluation of the proposal of S O S contained herein (the "Purpose of Disclosure"). Under no circumstance shall Proprietary and Confidential Information received from S O S be used for commercial purposes without the express prior written consent of S O S. The Recipient Party acknowledges that nothing contained in this Agreement is meant to transfer to the Recipient Party any ownership right in or license to use the Proprietary and Confidential Information and the Recipient Party shall not use the Proprietary and Confidential Information other than as shall be absolutely necessary to effectuate the Purpose of Disclosure.



01/05/2014

Attention: Mr. Larry Locklear

Re: Holcomb A (23361) Lease

Remediation of Salt Water & Hydrocarbon Contaminated Soil

Dear Sir:

The following is the proposed work plan for the remediation of the salt water and hydrocarbon contamination on the above-referenced property. Recommendations for a suitable remediation work plan are based on the initial field survey, field soil observation, and soil contamination sampling performed by SOS Environmental and subsequent sampling analysis.

Contamination at this site is the result of a recent discharge from a ruptured disposal line. The quantity of crude and produced water discharged is indeterminate, but is evidenced by dead and stressed vegetation on approximately .45 surveyed and tested acres. Since this is a recent discharge, contamination levels are obviously visible and very high, but are expected to be relatively shallow. Consequently, a "First Response" remediation work plan using the required amendments to sufficiently and effectively restore the site is the best environmentally and the most economically feasible. The first objective is to remove any current salt damage (Chloride & Sodium) from the soil, and secondly, to enhance the bio-remediation of hydrocarbons contaminating the soil. The remediation work plan is designed to address both of these conditions and to restore the site to acceptable conditions.

The total cost from SOS to accomplish the herein detailed plan is \$112,340.00. A detailed cost breakdown is included near the end of this proposal.

We appreciate the opportunity to work on this project for you.

Sincerely,

Stan Mickle

(817) 996-4653

cc: R.M. Hill Operating Inc.

408 4<sup>th</sup> St.

Graham, Texas 76450

Kim Peterson

# **OVERVIEW**

SOS Environmental, Inc. is pleased to submit this proposal to supply the required amendments and technical support for on-site treatment of sodium and hydrocarbon impacted soil on this property. Contamination at this site is the result of recent discharges. The work plan is designed to address both of these conditions. The recent contamination is primarily in the top 12" of soil and covers an area of approximately .45 acres, concentrated at the sites noted in the aerial view below.



Aerial View from Google Earth of subject site near Graham, TX

The initial salt-water discharge and the resulting accumulation of sodium have stressed or killed much of the vegetation and may prevent any re-growth until the contamination is removed. Many of the trees have dropped their leaves; however, some may be revived if the soil is remediated without delay.

The contaminated soil will be treated with a special blend of *DeSalt Plus*<sup>TM</sup> soil amendment, *JumpStart*<sup>TM</sup>, and *MicroBoost*<sup>TM</sup>. Water is required to move the amendments and contamination through the soil layers. Once the amendments are applied, the site can be irrigated or sufficient rainfall, as expected at this time of year, should be adequate.

Required amendments will be delivered in 2 bulk trucks, pre-bended and ready for dilution with fresh water, and applied. If needed, a frac tank could be spotted on location for dilution water.

In 3 to 6 months, SOS will take appropriate soil samples for analysis at an accredited Texas lab to confirm that all regulatory requirements are satisfied, or to identify any remaining hot spots that may require additional attention. A Routine Salinity Analysis and Total Petroleum Hydrocarbon Analysis may be performed and a status report prepared at that time. SOS recommends Energy Labs in College Station, Texas to conduct these analysis tests and will be glad to have the tests performed. If selected to handle this project, SOS does not charge for the initial site assessment, initial standard sample collection, remediation work plan, follow-up field visits, or closure reports. We will re-bill for the latter soil analysis costs, which are expected to be minor.

## SITE PREPARATION AND REMEDIATION

The structure of the soil will be physically and chemically modified allowing drainage to improve, and effecting the removal of undesirable salt contamination. Cationic amendment of sodium-contaminated soil is essential to remove the contamination as well as to restore the soil structure. Factors such as Exchangeable Sodium Percentage (ESP) and Cationic Exchange Capacity (CEC), and Total Petroleum Hydrocarbons (TPH) determine the amount of amendment required. The recommended amendment for the salt-water contamination is *DeSalt Plus*<sup>TM</sup>. This chemical compound was developed at Texas A&M, and has been successfully used in Texas and other states for nearly 20 years to treat and remediate sodic contamination such as evidenced at this site.

**DeSalt Plus**<sup>TM</sup> soil amendment contains high concentrations of readily available Ca<sup>++</sup>, plus stabilized NH<sub>4</sub><sup>+</sup> and micronutrients for site restoration. Both of the cations and the micronutrients are instrumental in removing the sodium from the clay structure and will serve as plant nutrients during the re-vegetation stage.

Note - DeSalt Plus is completely soluble and contains **NO Nitrates!** 

JumpStart TM is a specially designed pre-emergent growth stimulator and nutrient supplement for accelerated germination of crops and vegetation in areas previously affected by salt and hydrocarbon contamination. JumpStart TM stimulates growth while supplying a stabilized balance of vital nutrients for depleted and stressed soils. Soils affected by salts and hydrocarbons are usually deprived of critical soil structure and nutrients necessary for seed emergence and re-growth. JumpStart TM is a non-hazardous product that can be used in conjunction with soil remediation products such as MicroBoost TM and DeSalt Plus TM to remediate hydrocarbon and salt contaminated soils.

*MicroBoost* ™ nutrient package helps remediate soils contaminated by hydrocarbons from oil spills or leaks. This specialized product contains a concentrated and stabilized nutrient package that promotes and accelerates reproduction and growth of vital microorganisms in soil or water. *MicroBoost*™ assists these microorganisms to rapidly break down hydrocarbon contaminants for a more efficient and economical bioremediation process.

<u>GeoRinse<sup>TM</sup></u>, a surfactant and surface tension reducer, will be added to the amendment and blended with water to improve the chemical effectiveness and to increase the amendment-to-soil contact.



















# **COST ESTIMATE**

Products	Quantity	Units	Price	Cost
DeSalt Plus <sup>TM</sup>	6,500	gallons	\$14.40	\$86,400.00
JumpStart <sup>TM</sup>	4	55 gal	\$980.00	\$3,920.00
MicroBoost <sup>TM</sup>	5	55 gal	\$1,925.00	\$9,625.00
Geo Rinse <sup>TM</sup>	16	Units	\$120.00	\$1,920.00
Equipment and Personnel	Quantity	Units	Price	Cost
Application Trailer Pumps; Hoses	2	Days	\$1,000.00	\$2,000.00
Personnel	2	Days	\$1,200.00	\$2,400.00
Sample Collection	2	Days	\$751.00	N/C
Post-Application Sample Analysis	7	Each	\$225.00	\$1,575.00
Transportation	2	Trucks	\$2,250.00	\$4,500.00
Total Project Cost				\$112,340.00

## WORK PLAN

### **Prep Site**

Extract and remove for disposal any remaining pooled oil or salt water. Delineate and confirm entire contaminated area by soil sampling analysis being performed, with additional field conductivity test. Excavate and blend, or till soil to improve amendment and water percolation and aeration, so to promote and expedite natural remediation.

NOTE: In the creek area, excavation or tilling would be difficult, and could increase soil erosion and cause excessive water run-off. However, to insure rapid and complete salt removal and bio-remediation, the proper amendments should be applied to this area, as well. Small cofferdams can constructed down the creek bed to retain and hold amendments and irrigation water, which would increase nutrient absorption and effect quicker removal of contaminants. In the lower areas of the contamination site, or at strategic points along the affected creek bed, these catch dams or temporary sumps should be situated to capture any rinsate for proper disposal. Once the amendment blend has been applied, the creek area can be flushed with fresh water to insure good amendment-nutrient contact to the soil and removal of contaminants.

#### Stage 1

Deliver required amounts of pre-blended amendments (*DeSalt Plus*<sup>TM</sup>, *Jump Start*<sup>TM</sup>, *and Micro Boost*<sup>TM</sup>) and store in frac tank or transport truck retained onsite. Upload the amendments into SOS application trailers. These specialized application trailers will be used to apply appropriate amendment concentrations and fresh water to the affected area.

#### Stage 2

Applications of the recommended amounts of the soil amendments are made to the affected area. SOS will provide required application trailers, pumps, hoses, and personnel. All amendments will be pre-blended with fresh water and applied to site in amounts based on salt and hydrocarbon contamination levels.

#### Stage 3

Periodic irrigation, or natural precipitation, will speed up the remediation process. The more frequently this is done, and the more water that soaks through the soil, the faster the contamination is removed. Coffer dams or sump collection areas will be monitored and all rinseate will be collected for disposal until all evidence of contamination is removed to the following levels:

- TPH < 1% (10,000 ppm)
- Chlorides < 1,000 ppm (EC < 2 mmhos.)

#### Stage 4

After contamination displacement and remediation has taken place, new plant growth may begin to appear. This might occur as soon as 30 days, depending on the available rain fall or irrigation. At this time, test seeding of grasses (rye is recommended for this time of year) will facilitate erosion control and soil stabilization.

Composite soil samples can be taken at 3 and 6 months to evaluate progress, and closure samples can be made when the site has recovered.





#### STANDARD PROVISIONS FOR REMEDIATION SERVICES

Agreement. Acceptance of SOS Environmental, Inc. (SOS) Proposal and issuing of an order for services ("Order") by Customer constitutes acceptance of these provisions by Customer. All prior understandings are merged into the Order. Any additional or differing provisions in the Order, request for proposal (if any) or any other documents of the Customer are expressly rejected, and SOS's beginning of performance shall not be construed as acceptance of Customer's additional or differing provisions. The "Agreement" between the parties shall consist of SOS's Proposal including these Standard Provisions for Soil Remediation Services and Customer's Order.

<u>Services</u>. The Services to be performed (including proprietary products to be used in performing the Services) are as stated in the Proposal. The Customer understands SOS uses the information provided by the Customer to determine necessary and appropriate testing and selection of the proprietary products required to remediate certain characteristics of the soil. SOS's "analysis," for the purposes of this Agreement, is specifically to determine soil types and salts in the soil and to develop a soil treatment process to bring the soils to be treated to a level that is conducive to vegetation growth or as specified in the proposal.

<u>Disclaimer</u>. SOS's testing program is designed to obtain information of certain specific characteristics of the soils as identified in its Proposal and is not designed, nor is SOS engaged to analyze for other constituents or contaminates. In the event SOS's testing infers suspect materials or debris in the soils under analysis, SOS will immediately notify Customer of such inferences and halt its operations until specific directions are received from the Customer. SOS's services are limited to the targeted soils and no inference is to be drawn nor does SOS make an inferences concerning the soils below the targeted soils or adjacent to the targeted soils or their impact upon the targeted soils. Therefore, SOS does not infer or warrant in any manner that the targeted and treated soils will remain at the contracted levels.

<u>Invoicing and Payment</u>. Fifty percent of the project cost is due upon acceptance of the proposal and before work begins. SOS may invoice monthly, upon completion of project, or upon shipment of products as it in its sole discretion determines. The price to be charged and paid shall be that as stated in the Agreement and is exclusive of any taxes that are to be collected from Customer. Payments of invoices are due within 15 days of invoice receipt. If payment in full is not so received, Customer shall be delinquent and shall be subject to a charge equal to the lesser of 1.5% per month or the highest rate chargeable by law on the delinquent balance.

<u>Changed Conditions</u>. SOS's Proposal is based upon information provided to it by Customer. In the event the actual conditions are different, SOS shall be entitled to an equitable adjustment in price and performance period.

<u>Indemnification</u>. Customer agrees to defend, indemnify, save and hold harmless SOS from and against <u>any</u> liability or <u>any</u> cause of action, whether in law or equity, arising out of the services performed except to the extent those liabilities or causes of action are caused by SOS's negligence, breach of contract, or willful misconduct in performing the Services. Customer shall be responsible for all preexisting environmental conditions of the site and the liability for remediation thereof and agrees to defend, indemnify, save, and hold SOS harmless from and against any and all claims and causes of action, whether in law or equity, arising from conditions existing at the site.

<u>Warranty</u>. SOS warrants that all Services performed by it hereunder and all materials provided shall be free of defects in material or workmanship and shall meet or exceed all specifications at the time of inspection and acceptance. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED IN LAW, AND IS THE SOLE WARRANTY GRANTED.

<u>Customer Warranty and Representations</u>. Customer warrants that to the best of its knowledge, the site information and characteristics provided to SOS are current, accurate and complete; that it is the present owner of the site and/or possesses the necessary rights to perform or have the Services performed; that it has or will obtain the easements or any other authorizations for SOS's access to the site and authorizations/permits to perform the Services (excluding those licenses required of SOS); that performance of the Services by SOS or any other entity will not violate any federal, state or local law, rule, or regulation; and that the Customer is under no prohibition against the performance of the Services as provided herein.

<u>Term.</u> The term of this Agreement shall the performance period as stated in the Proposal.

<u>Force Majeure</u>. Except for the payment of monies due for services performed, delays or failure of either party in the performance of its required obligations shall be excused if caused by circumstances beyond the reasonable control of the party affected, including, but not limited to, acts of God, strikes, labor holiday, fire, flood, windstorm, explosion, riot, war, sabotage, transportation, provided that a prompt notice of such delay is given and the parties shall be diligent in attempting to remove such causes(s).

<u>Applicable Law</u>. This Agreement shall be governed by and construed in accordance with the laws of the State of Texas, excluding its conflicts of laws provisions.

<u>Legal Fees</u>. If any legal action is brought by either of the parties hereto, it is expressly agreed the party in whose favor a final judgment entered shall be entitled to recover from the other party reasonable attorneys' fees, costs and expenses.

<u>Non Waiver</u>. No waiver by either party of any provision or condition of this Agreement shall constitute or be deemed a waiver of any other provision or condition of this Agreement, or a waiver of any subsequent breach of the same provision or condition.

Assignment. Customer may not assign its rights, duties or obligation hereunder without the express, prior, written consent of SOS.

<u>Confidentiality</u>. Customer agrees to keep all information obtained from SOS or acquired in connection with or as a result of performing Services hereunder in strict confidence during and for a period of 2 years following the termination of this Agreement. Customer shall not divulge, nor permit any of its employees, officers, directors, shareholders, affiliates, agents or representatives to divulge such information or any part thereof to any party other that SOS without the prior written consent of SOS, and agrees it shall not use any of the information obtained from or provided by SOS for any purposes other than remediating the specific location identified in SOS's Proposal.